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BEARING PLANT, AIDED BY AVIATION INSTITUTE, INCREASES OUTPUT, SAVES MATERIALS

FIRST STATE BEARING PLANT WINS COMPETITION -- Moscow, Vechernyaya Moskva, 6 Aug 51

The Moscow First State Bearing Plant imeni L. M. Kaganovich won first place in the competition between enterprises of the Ministry of Automobile and Tractor Industry for the second quarter 1951. Best results were reported by the ball bearing, universal joint /needle/ bearing, tool, and assembly-building shops. The ball bearing shop won first place.

In the ball bearing shop, labor productivity increased 126 percent and average monthly output of bearings increased 133 percent, as compared to the fourth quarter 1950. Losses due to rejects were almost halved. Eighty-four out of 96 brigades have earned the excellent-quality-production title.

Of 115 departments in the automatic lathe, forge, roller, and other shops, 61 have earned the title of excellent-quality-production section.

The forge shop has promised to reduce rejects by 20 percent. In July, the forge shop saved 220 tons of expensive bearing steel. A big factor in the advances made by the forge shop was the introduction of the statistical control method.

Dudin-Barkovskiy /note variant spelling below/, docent of the Department of Metrology and Interchangeability, Moscow Aviation Technology Institute, developed a special chart which is handed to forge shop brigade leaders daily, along with their daily quotes. On the chart, the technologist sets down the maximum permissible allowances for all sizes of forgings. The controller makes a spot check every hour, and if the ring forging conforms to the allowance, the machine continues to operate. If the rings are not within the limits, a red bulb lights up over the machine, and it is stopped for resetting or repair. A centralized signal system has been set up in connection with the automatic control devices.

BOOSTS OUTPUT -- Moscow, Moskovskaya Pravda, 16 Aug 51

The First State Bearing Plant makes bearings ranging from small ones the size of a coin to large ones more than 1.5 meters in diameter.

Second quarter 1951 production was 5.5 percent more than the first quarter, and labor productivity was 2.5 percent higher. Workers are making every effort to complete the 1951 plan by 20 December and to turn out only excellent-quality products.

CONSERVES METAL -- Moscow, Trud, 18 Aug 51

In July, the forge shop of the First State Bearing Plant promised to save 1,600 tons of steel, 100,000 kilowatt-hours of electric power, and 80 tons of ideal fuel by the end of the year.

One of the points of this year's socialist contract stipulated that the workers would save enough metal in the course of the year so that the plant could work 5 days on material saved. The forge shop is the chief steel consumer of the plant.

Large-sized bearing rings, formerly made by free forging, are now made by hot profile rolling, which decreases the weight of the forging and, consequently, consumption of steel and the amount of subsequent machining. The ring for a No 7530 bearing weighed 15.4 kilograms when made by free forging, but weighs only 9.6 kilograms when made by the new method.

Several years' accumulation of rejected bearing rings lying in the plant's courtyard were sorted according to size and type of steel and then processed with power hammers so that they could be used for making forgings. In this way, 120 tons of scrap were put back into production.

In 7 months of this year, more than 300 inventions and innovations were proposed, and even though only part of them were put into practice, 2,400,000 rubles were saved. The forge shop saved 920 tons of steel in this period.

The plant has just won the Transferable Red Banner of the Council of Ministers USSR for the third time.

COMPLETES REVIEW OF INVENTIONS AND INNOVATIONS -- Moscow, Vechernyaya Moskva, 20 Aug 51

The First State Bearing Plant, which has promised to save 12 million rubles in 1951 by adopting inventions and innovations, is successfully keeping this promise.

At present, the results of a 30-day review of inventions and innovations are being announced. During the period, 1,705 proposals were brought forward. More than 600 of these have already been put into practice and more than 2,550,000 rubles saved. Best results were reported by the forge and abrasives shops, and the division of the chief power engineer.

IMPROVES FORGING METHODS -- Moscow, Moskovskaya Pravda, 23 Aug 51

One of the problems that the First State Bearing Plant had to solve to increase bearing output was the production of more accurate forgings. The statistical method of analyzing the accuracy of technological processes, and preventive control of the quality of production were used to achieve this end.

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The plant was aided in this task by the Department of Metrology and Interchangeability of the Moscow Aviation Technology Institute, with which it concluded an agreement. Engineers and technologists of the plant's Division of Technical Control began to study the method of statistical control in production, and at the same time carried out a technical-economic analysis and an analysis of the accuracy of technological processes by statistical methods.

First, the causes of all types of rejects over a number of previous years were studied, and it was found that the height and external diameter of the forgings determined the quality of the product. The analysis shows that by achieving stability in the forging process and uniform dimensions in the forgings, hundreds of thousands of rubles and several hundred tons of high-alloy steel can be saved yearly.

Correlated analysis revealed that there was less divergence between external diameters of forgings before and after machining than there was between internal diameters.

Three more or less typical horizontal forging machines were studied, and 400 consecutive forgings were selected from their output. Academician A. N. Kolmogorov and Professor N. V. Smirnov, Stalin Prize winner, carried out the statistical analysis of the results of this check. It was found that incorrect adjustment of the machines led to overconsumption of metal. The analysts also established the period of time after which the machine was likely to get out of adjustment.

Some of the measures taken to correct inaccurate forgings were the addition of stronger supports to the machines, change in the design of the heating furnaces, standardization of the size of the backing under the die and under the clip, and improvement of the quality of bearing bushings on the machine. The new method of analysis showed the effect of each of these measures on the accuracy of the forgings.

A new method of preventive statistical control had to be used to control not only the distribution of dimensions, but also the types of distribution. The method of "regulated selections" devised by Professor V. I. Romanovskiy was taken as a basis, and a number of changes made in it by the Department of Metrology and Interchangeability.

The results of this analysis were used to correct all the machines of the forge shop. An original electric light signal for indicating when the machine was out of adjustment, coupled with signal panels in the shop chief's office and the dispatcher's office, was proposed.

The statistical method of controlling the quality of production has become part of the forge shop's practice. A number of organizational and technical measures taken in connection with this method enabled the forge shop to exceed the plan for the first 6 months of 1951, to save 700 tons of metal, and to reduce losses due to rejects by 35 percent.

Scientific workers of the Moscow Aviation Technology Institute, particularly I. V. Dunin-Barkovskiy, Docent, Candidate of Technical Sciences, and director of the Department of Metrology and Interchangeability, visit the forge shop daily. -- S. Voronov, Doctor of Technical Sciences, and A. Gromov, chief engineer, First State Bearing Plant imeni L. M. Kaganovich, Stalin Prize winners

ADOPTS PRECISION CASTING METHODS -- Moscow, Vechernyaya Moskva, 3 Sep 51

The First State Bearing Plant is using precision casting methods for high-speed, carbon, and chrome steel castings, and also for copper and brass castings. I. Kuznetsov and a group of his associates from Orgavtoprom (All-Union State Institute of Automobile Technology) played an important part in introducing the method at the plant. An ordinary casting of a bracket weighs 3.5 kilograms before machining, while a precision casting of the same part weighs only 350 grams, that is, one tenth as much.

This method is especially effective in the casting of tools, and affords opportunities for making new highly productive milling cutters, broaches, drills, and cutters.

ACCUSE PLANT OF UNFAIR DISTRIBUTION -- Moscow, Moskovskaya Pravda, 7 Sep 51

The manager of the Moscow office of the Main Administration of Supply, Ministry of Machine and Instrument Building, a letter to Moskovskaya Pravda, complained of the system of distributing antifriction bearings at the First State Bearing Plant.

The Deputy Minister of Automobile and Tractor Industry has directed the First State Bearing Plant to reorganize the work of the sales division and to change the present system of distributing bearings.

SAVES ELECTRIC POWER -- Moscow, Vechernyaya Moskva, 19 Sep 51

The First State Bearing Plant saved 2,774,500 kilowatt-hours of electric power in the second quarter 1951. Plant power engineers modernized furnaces by increasing their power and improving their insulation with air chambers. These measures decreased the specific consumption of electric power per ton of production from 400 to 320 kilowatt-hours, and total savings amounted to 190,000 kilowatt-hours.

Plant technologists, aided by the Experimental Scientific Research Institute of the Bearing Industry (ENIIPP), are introducing transverse rolling of balls to replace punching. Rolling consumes approximately half as much electric power per ton of balls as punching.

The grooves of inner rings are now calibrated by pushing balls through them. This insures the accuracy of the grooves after the ring is turned on the lathe. Since this also reduces the allowances, productivity of grinding equipment increased 1.8 times, grinding wheels lasted much longer, and the number of rejects decreased. Adoption of this innovation saved 64,000 kilowatt-hours of electric power in the rod and tube shop alone.

By turning out forgings with the smallest possible variation in weight, the forge shop made possible a saving of 63,820 kilowatt-hours in subsequent operations.

Elevators installed on grinding machines in the ball shop have increased the load capacity of the machines from 10 to 120 kilograms and reduced the specific consumption of electric power per ton of balls from 310 to 235 kilowatt-hours.

Plant workers are trying to save 6 million kilowatt-hours of electric power by the end of the year.

SECOND STATE BEARING PLANT IMPROVES TECHNOLOGY -- Moscow, Vechernyaya Moskva, 11 Sep 51

Seventy out of 99 brigades at the Second State Bearing Plant have earned the excellent-quality-production title, and more than 60 workers have won the right to put their own inspection stickers on their output. The statistical control method has been adopted on 65 machine tools.

In the first 6 months of 1951, rejects were reduced by 45 percent, as compared to 1950.

Introduction of a superspeed spindle which rotates at 60,000 revolutions per minute has increased grinding productivity several times. Preparations are being made to adopt anode-mechanical pipe cutting.

Workers of the retainer drilling department have decided to reduce the cost of retainers 20 percent by the end of the year. The assembly shop has promised to save 2,500 kilograms of cardboard, 100 kilograms of gasoline, and 200 kilograms of lubricating oil in August.

COMPLETES THIRD-QUARTER PLAN -- Moscow, Vechernyaya Moskva, 29 Sep 51

The Second State Bearing Plant completed its third quarter 1951 plan on 27 September. Workers of the plant have promised to turn out 1,700,000 rubles' worth of additional production above the 10-month plan, and to complete the 1951 plan for converting machine tools to high-speed methods ahead of time.

SHIPS BEARINGS TO VOLGA-DON CANAL PROJECT -- Moscow, Izvestiya, 13 Jul 51

The Saratov Bearing Plant recently reported the shipment of a consignment of bearings, making up 90 percent of the third-quarter order, to the Volga-Don Canal project.

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